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(54)【考案の名称】 吐出量可変シーラーガン

(57)【実用新案登録請求の範囲】

【請求項1】 先端に噴出口を有するノズルにニードル弁を挿入し、該ニードル弁を引金の操作にて進退させ塗材の噴出停止を行なう吐出ガンにおいて、ニードル弁の後端に径小となる段部を形成し、この段部に接衝する球体を付勢するばねを設置した吐出量可変シーラーガン。

【考案の詳細な説明】

【産業上の利用分野】 本考案は接着剤やシーリング剤等の高粘度流体を塗材とする吐出ガンであって、吹き始めの初期吐出量を規制する吐出量可変シーラーガンに関する。

【従来の技術】 一般に、高粘度流体を吐出する吐出ガンにあつては、図4に示すように、ガン本体1は基端に握り部2、先端にノズル3を備え、引金4の操作にてノズル3内を進退するニードル弁5が貫通して設けられ、ノ

ズル3の先端の噴出口3aにノズルパイプ6がナット7により締着されている。この場合、引金4の操作により塗材を吐出し始めたときの初期吐出量と、ある程度吐出を継続し安定化状態となったときの吐出量には差がある。即ち、初期吐出時には、ガンに塗材圧送圧力の全圧が作用するため、図3、a、bに示すような、いわゆるダンゴ不具合と呼ばれる現象Aが生じ、塗面を汚し、シーラー見栄え品質の不具合を招いていた。このため従来では初期の吐出時の吐出量をおさえるため、作業者が初期の吐出時だけ引金操作量を少なくして感覚的な吐出量調整を行っていた。

【考案が解決しようとする課題】 しかし、作業者の感覚による引金操作は熟練を要する作業で、初期吐出時から均一な塗膜を得ることは熟練者でも困難な作業であり、そのため一般には、ダンゴ不具合が発生した場合、手作

業によるヘラ修正にて対処しているが、工数が多くなると共に、ヘラ修正による段付、付着不具合が多くなり改善が望まれていた。

【課題を解決するための手段】本考案は、先端に噴出口を有するノズルにニードル弁を挿入し、該ニードル弁を引金の操作にて進退させ塗材の噴出停止を行なう吐出ガンにおいて、ニードル弁の後端に径小となる段部を形成し、この段部に接衝する球体を付勢するばねを設置したものである。

【作用】本考案によれば、塗材を吐出させるために引金を引くと、ニードル弁の後端に形成した径小となる段部に、側面より押圧されるばね力によって球体が段部に接衝してニードル弁の後退が一旦規制され、ニードル弁はノズルの噴出口に対し、半開状態を維持すると共に、作業者に初期吐出状態を感覚的に知らしめる。その後、引金を更に引くことによりニードル弁の後端の段部を規制していた球体がばね力に抗して、この段部を乗り越えることにより規制はなくなり、安定した吐出が行なわれる。かくして初期吐出時にはノズルの噴出口に対し塗材の圧送圧力の全圧がかからないため初期吐出量の増大によりダンゴ不具合は解消され、その後の安定吐出状態とのばらつきを解消できる。

【実施例】以下、本考案の実施例を図面に従って詳細に説明する。1は基端に握り部2、先端にノズル3を備えたシーラーガン本体で、該シーラーガン本体1は引金4の操作にてノズル3内を進退するニードル弁5が貫通して設けられると共に、ノズル3の先端の噴出口3aにはノズルパイプ6が締付ナット7にて締着されている。又、ニードル弁5の後端5bには、該後端5bより径小とした段部8が形成されると共に、該段部8に接衝する球体9がばね10にて押付けられている。11はばね10の押圧力を調整するつまみである。更に、ニードル弁5はその後方をニードル弁ばね12にて付勢されている。13はニードル弁パッキン、14はガン本体1内を貫通し、握り部基端の塗材導入口（図示せず）より先端ノズル3に連通する塗材通路である。次に作用を説明すると、塗材はガン本体1の握り部2の基端の塗材導入口（図示せず）より、塗材通路14を通過して、先端のノズル3に供給される。ここで、引金4を引くことにより、該引金4に連結されたニードル弁5がニードル弁ばね12に抗してノズル3内の噴出口3aにニードル弁5の先端5aが着座している状態から後退し、噴出口3aは開口し、ノズル3内に圧送された塗材が噴出し、先端に連結されたノズルパイプ6を通して被塗物に向かって噴射される。ここで、本考案の場合、ニードル弁5の後端5bに径小とした段部8が形成され、ニードル弁5が初期吐出のために、僅かに後退したとき、この段部8に両側より接衝するばね10に付勢された球体9が当接することにより（図2、b参照）、ニードル弁5の後退は

一旦規制され、引金4を引く作業者の指に荷重がかかる。この荷重を作業者が知覚したときに初期吐出の状態となる。この状態では、ニードル弁5はノズル3の噴出口3aに対し、半開状態となるよう予めニードル弁5の引き代と後端と段部8の位置を調整する。次いで、更に引金4を引くことにより、ニードル弁5の後端5bの段部8位置に規制されていた球体9がばね10の付勢に抗して段部8を乗り越えることにより（図2、c参照）、ニードル弁5の後退を規制する荷重はなくなり安定した吐出状態を得る。尚、図2、aはニードル弁5がノズル3内の噴出口3aにその先端5aが着座し、吐出がされていない状態を示す。尚、塗材の吐出終了時は、引金4をはなすことによりニードル弁5は内装されたニードル弁ばね12の弾発にて図2、aの状態に復帰し、ノズル3内の噴出口3aにはニードル弁5の先端5aが着座し、塗材の噴出を遮断する。尚、図2に示す実施例では、段部8に接衝するばね10に付勢された球体9が、段部8の両側より当接する構成を示すが、ばね10に付勢された球体10は片側の1個でも十分にその機能を達成できる。

【考案の効果】上述のように本考案は、ニードル弁の後端に径小とした段部を形成し、この段部に接衝する球体をばね力にて押付けることによりニードル弁が後退したときに段部にて引き代が一旦規制されるため、塗材はその噴出量を制限されることで初期吐出時のダンゴ不具合の発生を解消することができる。従って、初期吐出から吐出終了まで塗布幅、塗布量とも均一となり、品質の向上を図ることができる。

#### 【図面の簡単な説明】

【図1】この考案の実施例の要部を示す縦断面図である。

【図2】ニードル弁と、後方の段部とばねを備えた球体との位置関係の説明図であり、（a）は段部にばねを備えた球体が未接衝の状態の説明図で、（b）は段部にばねを備えた球体が接衝している状態の説明図で、（c）は段部をばねを備えた球体が乗り越えた状態の説明図である。

【図3】初期吐出時のダンゴ不具合の状態を示し（a）はその正面図、（b）断面図である。

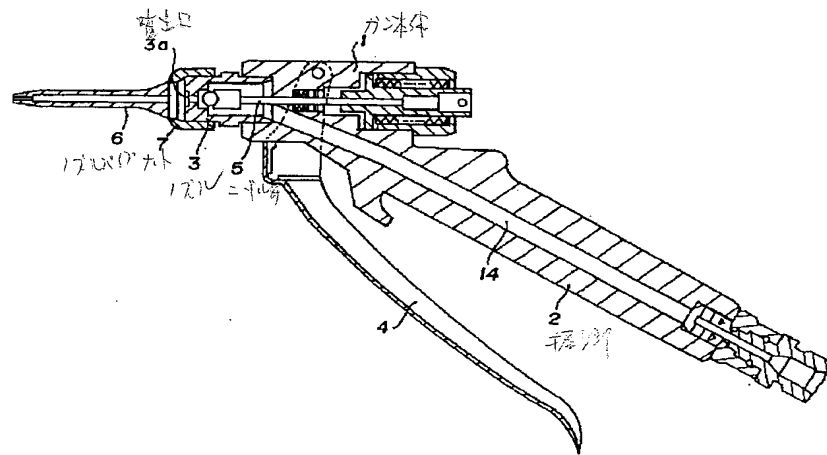
【図4】従来の吐出ガンの断面図である。

#### 【符号の説明】

- 1 シーラーガン本体
- 3 ノズル
- 4 引金
- 5 ニードル弁
- 5b ニードル弁後端
- 8 段部
- 9 球体
- 10 ばね

1 シーラーガン本体  
3 ノズル  
4 引金  
5 ニードル弁  
8 段部  
9 球体  
10 ばね

【図4】



フロントページの続き

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CLAIMS

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[Utility model registration claim]

[Claim 1] The discharge quantity adjustable sealer gun which installed the spring which energizes the solid sphere which inserts a needle valve in the nozzle which has an exhaust nozzle at a tip, forms the step which serves as small diameter at the back end of a needle valve in the regurgitation gun which this needle valve is made to move by actuation of a trigger, and performs a jet halt of a coating material, and \*\*\*\* to this step.

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DETAILED DESCRIPTION

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[Detailed explanation of a design]

[Industrial Application]

This design is related with the discharge quantity adjustable sealer gun which regulates the initial discharge quantity on which it is the regurgitation gun made into a coating material, and beginning blows hyperviscous fluids, such as adhesives and a sealing agent.

[Description of the Prior Art]

If it is generally in the regurgitation gun which carries out the regurgitation of the hyperviscous fluid, as shown in drawing 4 , the gun body 1 is grasped to a end face, is equipped with a nozzle 3 at the section 2 and a tip, and the needle valve 5 which moves the inside of a nozzle 3 by actuation of a trigger 4 penetrates, it is established, and the nozzle pipe 6 is put firmly on exhaust nozzle 3a at the tip of a nozzle 3 with the nut 7.

In this case, there is a difference in the initial discharge quantity when beginning to breathe out a coating material by actuation of a trigger 4, and the discharge quantity when continuing the regurgitation to some extent and changing into a stabilization condition.

That is, at the time of the initial regurgitation, in order that the total pressure of a coating material feeding pressure might act on a gun, the phenomenon A called drawing 3 and the so-called dumpling fault as shown in a and b arose, the painted surface was soiled, and the fault of sealer appearance quality was caused.

For this reason, in the former, in order to press down the discharge quantity at the time of the early regurgitation, the trigger control input was lessened only at the time of the early regurgitation, and the operator was performing sensuous discharge quantity adjustment.

[Problem(s) to be Solved by the Device]

However, the trigger actuation by an operator's feeling was the activity which requires skill, and it was an activity also with a difficult expert to obtain a uniform paint film from the time of the initial regurgitation, therefore generally, when dumpling fault occurred, it was coped with by manual spatula correction, but while the man day increased, the stage and the adhesion fault by spatula correction increased, and an improvement was desired.

[Means for Solving the Problem]

This design inserts a needle valve in the nozzle which has an exhaust nozzle at a tip, forms the step which serves as small diameter at the back end of a needle valve in the regurgitation gun which this needle valve is made to move by actuation of a trigger, and performs a jet halt of a coating material, and installs the spring which energizes the solid sphere which \*\*\*\* to this step.

[Function]

While a solid sphere \*\*\*\* to a step according to the spring force pressed from a side face by the step used as the small diameter formed in the back end of a needle valve when the trigger was subtracted, in order to make a coating material breathe out according to this design, retreat of a needle valve is once regulated and a needle valve maintains a half-opening condition to the exhaust nozzle of a nozzle, an operator is made to know an initial regurgitation-like bear sensuously. Then, by subtracting a trigger further, the solid sphere which had regulated the step of the back end of a needle valve resists the spring force, by overcoming this step, regulation is

removed and the stable regurgitation is performed.

Since the total pressure of the feeding pressure of a coating material is not applied to the exhaust nozzle of a nozzle at the time of the initial regurgitation in this way, dumpling fault is canceled by increase of initial discharge quantity, and dispersion in a subsequent stabilization discharge condition can be canceled.

[Example]

Hereafter, the example of this design is explained to a detail according to a drawing.

1 is the sealer gun body which grasped to the end face and was equipped with the nozzle 3 at the section 2 and a tip, and while the needle valve 5 which moves the inside of a nozzle 3 by actuation of a trigger 4 penetrates this sealer gun body 1 and being prepared, the nozzle pipe 6 is put firmly on exhaust nozzle 3a at the tip of a nozzle 3 with the nut 7 with a bundle. moreover, the solid sphere which \*\*\*\* to this step 8 while the step 8 made into small diameter from this back end 5b is formed in back end 5b of a needle valve 5 — 9 is forced with the spring 10. 11 is a tongue which adjusts the thrust of a spring 10. Furthermore, the needle valve 5 is energized with the needle valve spring 12 in the back. It is the coating material path which 13 penetrates needle valve packing, and 14 penetrates the inside of the gun body 1, and is open for free passage for the tip nozzle 3 from the coating material inlet (not shown) of a grip section end face.

Next, if an operation is explained, from the coating material inlet (not shown) of the end face of the grip section 2 of the gun body 1, a coating material will pass along the coating material path 14, and will be supplied to the nozzle 3 at a tip. It retreats from the condition that the needle valve 5 connected with this trigger 4 by subtracting a trigger 4 here resisted the needle valve spring 12, and tip 5a of a needle valve 5 has sat down to exhaust nozzle 3a in a nozzle 3, and opening is carried out, the coating material fed in the nozzle 3 blows off, and exhaust nozzle 3a is injected toward a coated object through the nozzle pipe 6 connected at the tip.

the solid sphere energized by the spring 10 which \*\*\*\* from both sides to this step 8 when the step 8 made into small diameter was formed in back end 5b of a needle valve 5 here in the case of this design and a needle valve 5 retreated slightly for the initial regurgitation — when 9 contacts, ( drawing 2 , referring to the b), and retreat of a needle valve 5 are once regulated, and require a load for the finger of the operator who subtracts a trigger 4. When the operator has perceived this load, it will be in the condition of the initial regurgitation. In this condition, to exhaust nozzle 3a of a nozzle 3, a needle valve 5 adjusts the location of the length cost of a needle valve 5, the back end, and a step 8 beforehand so that it may become a letter bear of half-opening.

subsequently, the solid sphere regulated by step 8 location of back end 5b of a needle valve 5 by subtracting a trigger 4 further — when 9 resists energization of a spring 10 and overcomes a step 8, the load which regulates ( drawing 2 , refer to the c), and retreat of a needle valve 5 obtains the discharge condition which was lost and was stabilized.

In addition, the tip 5a sits down [ a needle valve 5 ] to exhaust nozzle 3a in a nozzle 3, and drawing 2 and a show the condition that the regurgitation is not carried out.

In addition, when releasing a trigger 4 at the time of regurgitation termination of a coating material, it returns to drawing 2 and the condition of a with the from cartridge of the needle valve spring 12 by which interior was carried out, tip 5a of a needle valve 5 sits down to exhaust nozzle 3a in a nozzle 3, and a needle valve 5 intercepts jet of a coating material.

in addition, the solid sphere energized in the example shown in drawing 2 by the spring 10 which \*\*\*\* to a step 8 — the solid sphere energized by the spring 10 although 9 showed the configuration which contacts from the both sides of a step 8 — 10 can fully attain at least one [ of one side ] of the function.

[Effect of the Device]

As mentioned above, this design forms in the back end of a needle valve the step made into small diameter, and since length cost is once regulated in a step when a needle valve retreats by forcing the solid sphere which \*\*\*\* to this step by the spring force, a coating material can cancel generating of the dumpling fault at the time of the initial regurgitation with that amount of jet being restricted. Therefore, spreading width of face and coverage become uniform from the

initial regurgitation to regurgitation termination, and improvement in quality can be aimed at.

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[Translation done.]



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TECHNICAL FIELD

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[Industrial Application]

This design is related with the discharge quantity adjustable sealer gun which regulates the initial discharge quantity on which it is the regurgitation gun made into a coating material, and beginning blows hyperviscous fluids, such as adhesives and a sealing agent.

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PRIOR ART

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[Description of the Prior Art]

If it is generally in the regurgitation gun which carries out the regurgitation of the hyperviscous fluid, as shown in drawing 4 , the gun body 1 is grasped to a end face, is equipped with a nozzle 3 at the section 2 and a tip, and the needle valve 5 which moves the inside of a nozzle 3 by actuation of a trigger 4 penetrates, it is established, and the nozzle pipe 6 is put firmly on exhaust nozzle 3a at the tip of a nozzle 3 with the nut 7.

In this case, there is a difference in the initial discharge quantity when beginning to breathe out a coating material by actuation of a trigger 4, and the discharge quantity when continuing the regurgitation to some extent and changing into a stabilization condition.

That is, at the time of the initial regurgitation, in order that the total pressure of a coating material feeding pressure might act on a gun, the phenomenon A called drawing 3 and the so-called dumpling fault as shown in a and b arose, the painted surface was soiled, and the fault of sealer appearance quality was caused.

For this reason, in the former, in order to press down the discharge quantity at the time of the early regurgitation, the trigger control input was lessened only at the time of the early regurgitation, and the operator was performing sensuous discharge quantity adjustment.

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EFFECT OF THE INVENTION

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[Effect of the Device]

As mentioned above, this design forms in the back end of a needle valve the step made into small diameter, and since length cost is once regulated in a step when a needle valve retreats by forcing the solid sphere which \*\*\*\* to this step by the spring force, a coating material can cancel generating of the dumpling fault at the time of the initial regurgitation with that amount of jet being restricted. Therefore, spreading width of face and coverage become uniform from the initial regurgitation to regurgitation termination, and improvement in quality can be aimed at.

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TECHNICAL PROBLEM

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[Problem(s) to be Solved by the Device]

However, the trigger actuation by an operator's feeling was the activity which requires skill, and it was an activity also with a difficult expert to obtain a uniform paint film from the time of the initial regurgitation, therefore generally, when dumping fault occurred, it was coped with by manual spatula correction, but while the man day increased, the stage and the adhesion fault by spatula correction increased, and an improvement was desired.

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MEANS

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[Means for Solving the Problem]

This design inserts a needle valve in the nozzle which has an exhaust nozzle at a tip, forms the step which serves as small diameter at the back end of a needle valve in the regurgitation gun which this needle valve is made to move by actuation of a trigger, and performs a jet halt of a coating material, and installs the spring which energizes the solid sphere which \*\*\*\* to this step.

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OPERATION

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[Function]

While a solid sphere \*\*\*\* to a step according to the spring force pressed from a side face by the step used as the small diameter formed in the back end of a needle valve when the trigger was subtracted, in order to make a coating material breathe out according to this design, retreat of a needle valve is once regulated and a needle valve maintains a half-opening condition to the exhaust nozzle of a nozzle, an operator is made to know an initial regurgitation-like bear sensuously. Then, by subtracting a trigger further, the solid sphere which had regulated the step of the back end of a needle valve resists the spring force, by overcoming this step, regulation is removed and the stable regurgitation is performed.

Since the total pressure of the feeding pressure of a coating material is not applied to the exhaust nozzle of a nozzle at the time of the initial regurgitation in this way, dumpling fault is canceled by increase of initial discharge quantity, and dispersion in a subsequent stabilization discharge condition can be canceled.

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EXAMPLE

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## [Example]

Hereafter, the example of this design is explained to a detail according to a drawing.

1 is the sealer gun body which grasped to the end face and was equipped with the nozzle 3 at the section 2 and a tip, and while the needle valve 5 which moves the inside of a nozzle 3 by actuation of a trigger 4 penetrates this sealer gun body 1 and being prepared, the nozzle pipe 6 is put firmly on exhaust nozzle 3a at the tip of a nozzle 3 with the nut 7 with a bundle. moreover, the solid sphere which \*\*\*\* to this step 8 while the step 8 made into small diameter from this back end 5b is formed in back end 5b of a needle valve 5 — 9 is forced with the spring 10. 11 is a tongue which adjusts the thrust of a spring 10. Furthermore, the needle valve 5 is energized with the needle valve spring 12 in the back. It is the coating material path which 13 penetrates needle valve packing, and 14 penetrates the inside of the gun body 1, and is open for free passage for the tip nozzle 3 from the coating material inlet (not shown) of a grip section end face.

Next, if an operation is explained, from the coating material inlet (not shown) of the end face of the grip section 2 of the gun body 1, a coating material will pass along the coating material path 14, and will be supplied to the nozzle 3 at a tip. It retreats from the condition that the needle valve 5 connected with this trigger 4 by subtracting a trigger 4 here resisted the needle valve spring 12, and tip 5a of a needle valve 5 has sat down to exhaust nozzle 3a in a nozzle 3, and opening is carried out, the coating material fed in the nozzle 3 blows off, and exhaust nozzle 3a is injected toward a coated object through the nozzle pipe 6 connected at the tip.

the solid sphere energized by the spring 10 which \*\*\*\* from both sides to this step 8 when the step 8 made into small diameter was formed in back end 5b of a needle valve 5 here in the case of this design and a needle valve 5 retreated slightly for the initial regurgitation — when 9 contacts, ( drawing 2 , referring to the b), and retreat of a needle valve 5 are once regulated, and require a load for the finger of the operator who subtracts a trigger 4. When the operator has perceived this load, it will be in the condition of the initial regurgitation. In this condition, to exhaust nozzle 3a of a nozzle 3, a needle valve 5 adjusts the location of the length cost of a needle valve 5, the back end, and a step 8 beforehand so that it may become a letter bear of half-opening.

subsequently, the solid sphere regulated by step 8 location of back end 5b of a needle valve 5 by subtracting a trigger 4 further — when 9 resists energization of a spring 10 and overcomes a step 8, the load which regulates ( drawing 2 , refer to the c), and retreat of a needle valve 5 obtains the discharge condition which was lost and was stabilized.

In addition, the tip 5a sits down [ a needle valve 5 ] to exhaust nozzle 3a in a nozzle 3, and drawing 2 and a show the condition that the regurgitation is not carried out.

In addition, when releasing a trigger 4 at the time of regurgitation termination of a coating material, it returns to drawing 2 and the condition of a with the from cartridge of the needle valve spring 12 by which interior was carried out, tip 5a of a needle valve 5 sits down to exhaust nozzle 3a in a nozzle 3, and a needle valve 5 intercepts jet of a coating material.

in addition, the solid sphere energized in the example shown in drawing 2 by the spring 10 which \*\*\*\* to a step 8 — the solid sphere energized by the spring 10 although 9 showed the

configuration which contacts from the both sides of a step 8 -- 10 can fully attain at least one  
[ of one side ] of the function.

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[Translation done.]



\* NOTICES \*

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- 1.This document has been translated by computer. So the translation may not reflect the original precisely.
- 2.\*\*\*\* shows the word which can not be translated.
- 3.In the drawings, any words are not translated.

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DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1] It is drawing of longitudinal section showing the important section of the example of this design.

[Drawing 2] It is the explanatory view of the physical relationship of a needle valve and the solid sphere equipped with a back step and a back spring, and (c) is an explanatory view in the condition that the solid sphere to which (a) equipped the step with the spring was the explanatory view of \*\*\*\* of non-\*\*\*\*, and are an explanatory view in the condition that the solid sphere to which (b) equipped the step with the spring is \*\*\*\*(ing), and the solid sphere equipped with the spring overcame the step.

[Drawing 3] The condition of the dumpling fault at the time of the initial regurgitation is shown, and (a) is the front view and the (b) sectional view.

[Drawing 4] It is the sectional view of the conventional regurgitation gun.

[Description of Notations]

- 1 Sealer Gun Body
- 3 Nozzle
- 4 Trigger
- 5 Needle Valve
- 5b Needle valve back end
- 8 Step
- 9 Solid Sphere
- 10 Spring

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[Translation done.]

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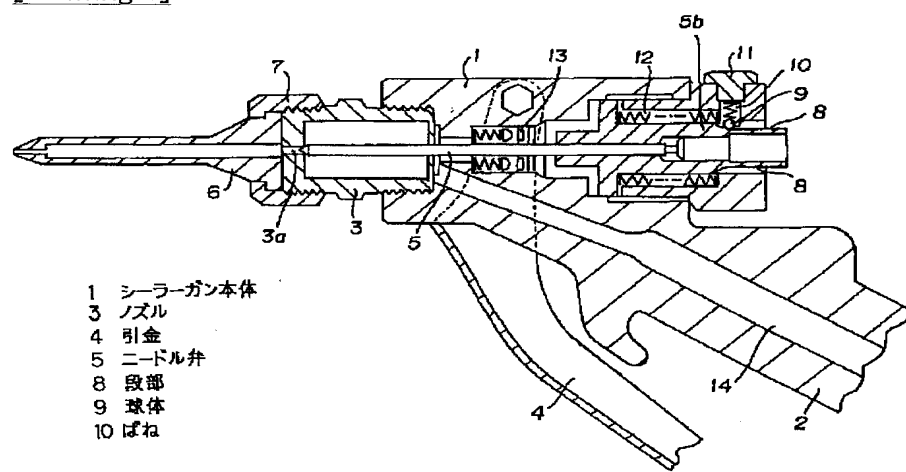
1.This document has been translated by computer. So the translation may not reflect the original precisely.

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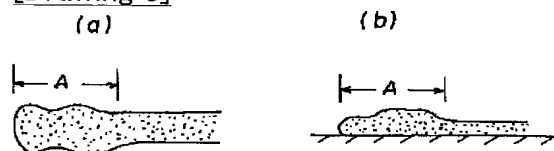
3.In the drawings, any words are not translated.

## DRAWINGS

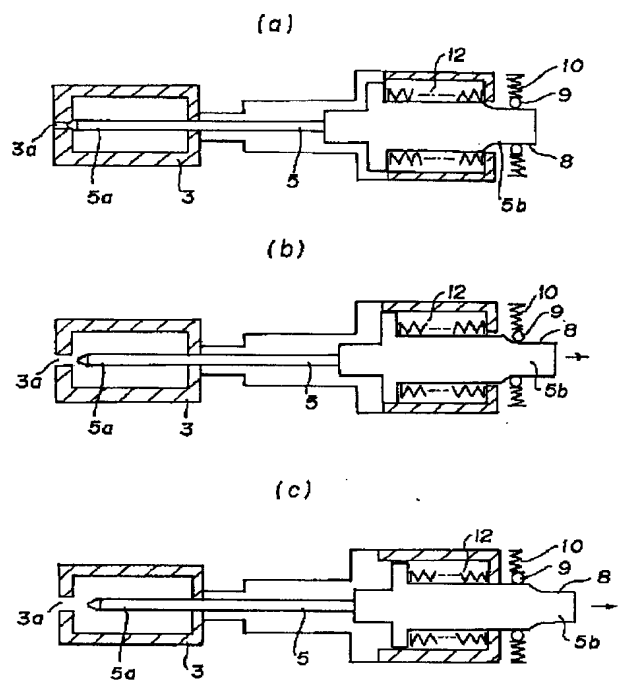
[Drawing 1]



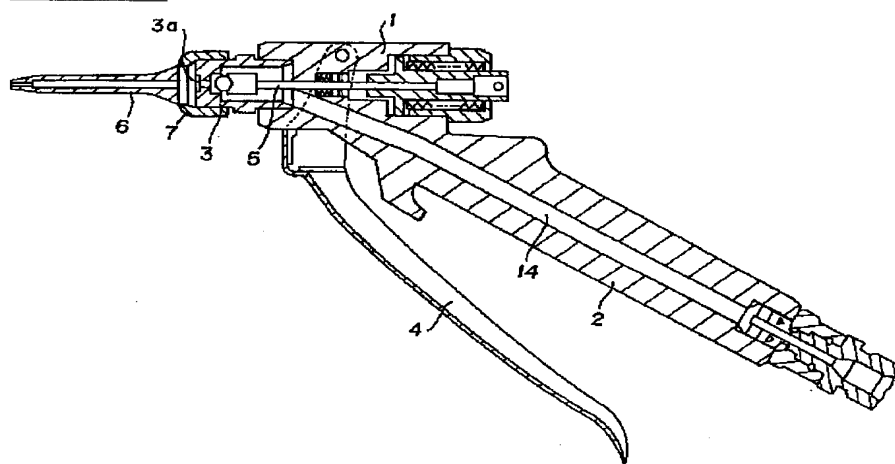
[Drawing 3]



[Drawing 2]



[Drawing 4]



[Translation done.]